

IN THE CLAIMS

*The status of the claims as presently amended is as follows:*

1. *(Currently Amended)* A headlamp light axis adjusting apparatus for a vehicle having a headlamp, comprising:

a light axis adjustor for adjusting a light axis of the headlamp;

an operating state detector for detecting an operating state of the vehicle;

an inclined state detector for detecting an inclined state of the vehicle relative to a road surface;

a change amount computing unit for computing an amount of change of the inclined state during a halt of the vehicle based on results of detection of said inclined state detector when said operating state detector detects a stop state of the vehicle; and

a control device for controlling said light axis adjustor based on the results of detection of said inclined state detector and results of computation of said change amount computing unit,

wherein the inclined state detector includes an inclined state sensor exclusively adapted for mounting to the vehicle in front of or forwardly of a front axle of the vehicle, ~~and~~

wherein the inclined state detector relies exclusively on the inclined state sensor to detect an inclined state of the vehicle relative to a road surface, and

wherein the inclined state detector transmits and receives signal waves along a direction nearly perpendicular to a longitudinal direction of the vehicle.

2. *(Previously Presented)* The headlamp light axis adjusting apparatus according to claim 1, wherein said change amount computing unit includes:

an average value calculator for calculating average values by performing moving average processing of the results of detection of said inclined state detector;

a memory device for storing convergent average values obtained when said average values converge within a predetermined range; and

an inclined state change amount setting device for setting a difference between a maximum value and a minimum value of said convergent average values as said amount of change of the inclined state.

3. *(Previously Presented)* The headlamp light axis adjusting apparatus according to claim 2, wherein said control device includes an updating device for updating the results of detection of said inclined state detector by adding said amount of change to, or subtracting said amount of

change from, said results of detection when said amount of change is not less than a set amount of change which has been preset.

4. (*Previously Presented*) The headlamp light axis adjusting apparatus according to claim 1, wherein:

said operating state detector includes an average value computing unit for computing an average value of the inclined state during driving based on the results of detection of said inclined state detector when said operating state detector detects a driving state of the vehicle, and

said control device controls said light axis adjustor based on the results of detection of said inclined state detector and results of computation of said average value computing unit.

5. (*Previously Presented*) A headlamp light axis adjusting apparatus for a vehicle having a headlamp, comprising:

a light axis adjustor for adjusting a light axis of the headlamp;

an operating state detector for detecting an operating state of the vehicle;

an inclined state detector for detecting an inclined state of the vehicle relative to a road surface;

a change amount computing unit for computing an amount of change of the inclined state during a halt of the vehicle based on results of detection of said inclined state detector when said operating state detector detects a stop state of the vehicle; and

a control device for controlling said light axis adjustor based on the results of detection of said inclined state detector and results of computation of said change amount computing unit,

wherein said operating state detector includes an average value computing unit for computing an average value of the inclined state during driving based on the results of detection of said inclined state detector when said operating state detector detects a driving state of the vehicle,

wherein said average value computing unit includes:

a collector for collecting a specified number or more of the results of detection of said inclined state detector during driving;

a standard deviation calculator for calculating a standard deviation based on results of collection; and

a setting device for setting an average value of said results of collection as an inclined state average value during driving when said standard deviation is not more than a set standard deviation which has been preset, and

wherein said control device includes an updating device for updating the results of detection of said inclined state detector to said average value, and controls said light axis adjustor based on the results of detection of said inclined state detector and results of computation of said average value computing unit.

6. (*Previously Presented*) A headlamp light axis adjusting apparatus for a vehicle having a headlamp, comprising:

a light axis adjustor for adjusting a light axis of the headlamp;

an operating state detector for detecting an operating state of the vehicle;

an inclined state detector for detecting an inclined state of the vehicle relative to a road surface;

a change amount computing unit for computing an amount of change of the inclined state during a halt of the vehicle based on results of detection of said inclined state detector when said operating state detector detects a stop state of the vehicle;

a control device for controlling said light axis adjustor based on the results of detection of said inclined state detector and results of computation of said change amount computing unit,

a standard deviation calculator for collecting a specified number or more of the results of detection of said inclined state detector and calculating a standard deviation when said operating state detector detects a stop state of the vehicle; and

an average value computing unit which, when said standard deviation has been judged to be not greater than a set standard deviation that has been preset, computes an average value of the results of detection for which said standard deviation has been judged to be not greater than said set standard deviation, and

wherein said control device includes an updating device which updates the results of detection of said inclined state detector to the average value computed by said average value computing unit when said standard deviation is not greater than said set standard deviation, and which adds said amount of change to, or subtracts said amount of change from, the results of detection of said inclined state detector to update said results of detection, when said standard deviation is greater than said set standard deviation.

7. (*Previously Presented*) The headlamp light axis adjusting apparatus according to claim 1, wherein said inclined state detector further includes a filter device for removing high frequency components of data on the inclination angle detected by said inclination sensor.

8. (*Previously Presented*) The headlamp light axis adjusting apparatus according to claim 7, wherein said inclination sensor is an ultrasonic sensor having a transmitter and a receiver.

9. (*Previously Presented*) The headlamp light axis adjusting apparatus according to claim 8, wherein said transmitter and said receiver are a pair of ultrasonic sensors placed in a vehicle width direction, and a plurality of said pairs of ultrasonic sensors are disposed in a longitudinal direction of the vehicle.

10. (*Previously Presented*) The headlamp light axis adjusting apparatus according to claim 7, wherein said inclined state sensor is a laser sensor.

11. (*Previously Presented*) The headlamp light axis adjusting apparatus according to claim 1, wherein:

said vehicle is a truck furnished with a cab and a frame where said cab is disposed, and said inclined state sensor is placed on said cab or said frame.

12. (*Currently Amended*) A headlamp light axis adjusting apparatus for a vehicle having a headlamp, comprising:

light axis adjusting means for adjusting a light axis of the headlamp;

operating state detecting means for detecting an operating state of the vehicle;

inclined state detecting means for detecting an inclined state of the vehicle relative to a road surface;

change amount computing means for computing an amount of change of the inclined state during a halt of the vehicle based on results of detection of said inclined state detecting means when said operating state detecting means detects a stop state of the vehicle; and

control means for controlling said light axis adjusting means based on the results of detection of said inclined state detecting means and results of computation of said change amount computing means[.].

wherein the inclined state detecting means includes an inclined state sensor exclusively adapted for mounting to the vehicle in front or forwardly of a front axle of the vehicle, ~~and~~

wherein the inclined state detecting means relies exclusively on the inclined state sensor to detect an inclined state of the vehicle relative to a road surface, and

wherein the inclined state detector transmits and receives signal waves along a direction nearly perpendicular to a longitudinal direction of the vehicle.

13. (*Currently Amended*) A vehicle having a headlamp and a headlamp light axis adjusting apparatus, the headlamp light axis adjusting apparatus comprising:

a light axis adjustor for adjusting a light axis of the headlamp;

an operating state detector for detecting an operating state of the vehicle;

an inclined state detector for detecting an inclined state of the vehicle relative to a road surface;

a change amount computing unit for computing an amount of change of the inclined state during a halt of the vehicle based on results of detection of said inclined state detector when said operating state detector detects a stop state of the vehicle; and

a control device for controlling said light axis adjustor based on the results of detection of said inclined state detector and results of computation of said change amount computing unit,

wherein the inclined state detector includes an inclined state sensor exclusively mounted to the vehicle in front or forwardly of a front axle of the vehicle, ~~and~~

wherein the inclined state detector relies exclusively on the inclined state sensor to detect an inclined state of the vehicle relative to a road surface, and

wherein the inclined state detector transmits and receives signal waves along a direction nearly perpendicular to a longitudinal direction of the vehicle.

14. (*Previously Presented*) The vehicle according to claim 13, further including a vehicle frame with a front cross member, wherein the headlamp is mounted above the cross member and the inclined state sensor is mounted to the cross member.

15. (*New*) The headlamp light axis adjusting apparatus according to claim 1, wherein the include state detector comprises a plurality of transmitters for transmitting the signal waves and a plurality of receivers for receiving the signal waves transmitted by the transmitters.

16. (New) The headlamp light axis adjusting apparatus according to claim 12, wherein the include state detector comprises a plurality of transmitters for transmitting the signal waves and a plurality of receivers for receiving the signal waves transmitted by the transmitters.

17. (New) The vehicle according to claim 13, wherein the include state detector comprises a plurality of transmitters for transmitting the signal waves and a plurality of receivers for receiving the signal waves transmitted by the transmitters.

18. (New) The headlamp light axis adjusting apparatus according to claim 15, wherein the transmitters are adapted to be disposed on one of the right side or the left side of the vehicle, and the receivers are adapted to be disposed on the other of the right side or the left side of the vehicle.

19. (New) The headlamp light axis adjusting apparatus according to claim 16, wherein the transmitters are adapted to be disposed on one of the right side or the left side of the vehicle, and the receivers are adapted to be disposed on the other of the right side or the left side of the vehicle.

20. (New) The vehicle according to claim 17, wherein the transmitters are disposed on one of the right side or the left side of the vehicle, and the receivers are disposed on the other of the right side or the left side of the vehicle.